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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CHEN, JACK S J

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 07/03/2002

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No. 10/052,853	Applicant(s) Wada et al.
Examiner Jack Chen	Art Unit 2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 11/9/01 through 3/11/02.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

4) Claim(s) 9-15 is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 9-15 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are a) accepted or b) objected to by the Examiner. Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) The proposed drawing correction filed on _____ is: a) approved b) disapproved by the Examiner. If approved, corrected drawings are required in reply to this Office action.

12) The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some* c) None of:

- Certified copies of the priority documents have been received.
- Certified copies of the priority documents have been received in Application No. _____.
- Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) The translation of the foreign language provisional application has been received.

15) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449) Paper No(s). 5

4) Interview Summary (PTO-413) Paper No(s). _____
5) Notice of Informal Patent Application (PTO-152)
6) Other:

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DETAILED ACTION

1. In response to the communications dated November 9, 2001 through March 11, 2002, claims 9-15 are active in this application as a result of the cancellation of claims 1-8.

Information Disclosure Statement

2. The information disclosure statement filed November 9, 2001 has been considered.

Oath/Declaration

3. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

The full name of the second inventor, R.V. Giridhar (family name and at least one given name together with any initial) has not been set forth.

Claim Objections

4. Claims 12-14 are objected to because of the following informalities:

Regarding claim 12, line 1, the phrase “the flash cell floating gate” should change to --the flash memory cell’s floating gate-- for consistency.

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Claims 13-14 are also objected to as being dependent on claim 12.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 9-11, 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Kiyohiko

[JPO Publication Number: 04-078,173].

Kiyohiko discloses a flash memory (called “EPROM” in Kiyohiko, English abstract section, lines 1-4) comprising: a semiconductor substrate 1 (fig. 1) that includes a flash memory cell (called “EPROM element” in Kiyohiko, English abstract section, lines 1-4) that has a floating gate 3 (fig. 1, English abstract section, lines 10); a conductive layer 7 (fig. 1, called “aluminum wiring” in Kiyohiko, English abstract section, line 8) formed on the substrate 1; and a passivation layer 9 and 10 (fig. 1, English abstract section, lines 5-6) formed on the conductive layer 7 that is not transparent to ultraviolet light (called “opaque to ultraviolet rays” in Kiyohiko, English abstract section, line 9).

Regarding claim 10, wherein the passivation layer comprises a barrier layer 9 (fig. 1, called “silicon nitride film” in Kiyohiko, English abstract section, line 5, which is the same material as

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applicant's disclosure, see page 5, line 4 of the instant application) and a stress reduction layer 10 (fig. 1, called "polyimide film" in Kiyohiko, English abstract section, lines 5-6 and 2-4, which is the same material as applicant's disclosure, see page 5, lines 4-5 of the instant application).

Regarding claim 11, wherein the passivation layer comprises a silicon nitride layer 9 (fig. 1, called "silicon nitride film" in Kiyohiko, English abstract section, line 5) and a polyimide layer 10 (fig. 1, called "polyimide film" in Kiyohiko, English abstract section, lines 5-6 and 2-4).

Regarding claim 15, wherein the passivation layer comprises a polyimide layer 10 (fig. 1, called "polyimide film" in Kiyohiko, English abstract section, lines 5-6 and 2-4).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was

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made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kiyohiko [JPO Publication Number: 04-078,173] in view of Jeuch [U.S. Patent Number: 5,138,573].

Kiyohiko disclosed above in paragraph 6, in particular, the device comprises a floating gate 3 having the physical gate length as shown in fig. 1; however, Kiyohiko does not explicitly show the floating gate having a length that is less than about 0.5 microns.

Jeuch teaches a EPROM (col. 1, lines 5-10) comprising a floating gate (col. 2, lines 49-53) having a length (called “width” in Jeuch, col. 2, lines 49-50) that is less than 0.5 microns (col. 2, lines 49-53 and col. 3, lines 44-50), which greatly contributes to reducing the dimensions of the storage cell (col. 2, lines 49-53).

Regarding claim 13, Kiyohiko shows the conductive layer forms the final metal interconnect 7 (fig. 1, called “aluminum wiring” in Kiyohiko, English abstract section, line 8) for the flash memory (called “EPROM” in Kiyohiko, English abstract section, lines 1-4), upon which is formed the passivation layer 9 and 10 (fig. 1).

Regarding claim 14, Kiyohiko shows the silicon nitride layer 9 (fig. 1) is about 0.3 μm (page 466, left column, lines 1-3, which corresponds to *3000 angstroms*) thick.

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device structure of Kiyohiko to select the suitable floating gate length as taught by Jeuch in order to reduce the dimensions of the storage cell (col. 2, lines

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49-53), such will reduce the dimensions of the integrated circuits and increase the integration density (col. 1, lines 27-30). Further in this regard, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack Chen whose telephone number is (703) 308-5838. The examiner can normally be reached on Monday-Friday (alternate Monday off) from 8:30 am to 6:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri, can be reached on (703)306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.


Jack Chen

June 28, 2002